

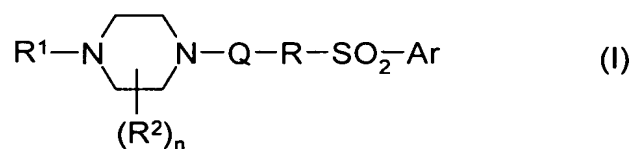
### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

In the claims:

1. (Original) An N-[(piperazinyl)hetaryl]arylsulfonamide compound of the general formula I



in which

- R is oxygen, a group N-R<sup>3</sup> or a group CR<sup>3a</sup>R<sup>3b</sup>;
- Q is a bivalent, 6-membered heteroaromatic radical which possesses 1 or 2 N atoms as ring members and which optionally carries one or two substituents R<sup>a</sup> which is/are selected, independently of each other, from halogen, CN, NO<sub>2</sub>, CO<sub>2</sub>R<sup>4</sup>, COR<sup>5</sup>, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, NH<sub>2</sub>, NHR<sup>6</sup>, NR<sup>6</sup>R<sup>7</sup> and C<sub>1</sub>-C<sub>4</sub>-haloalkoxy;

Ar is phenyl or a 6-membered heteroaromatic radical which possesses 1 or 2 N atoms as ring members and which optionally carries one or two substituents  $R^b$ , which is/are selected from halogen,  $NO_2$ , CN,  $CO_2R^4$ ,  $COR^5$ ,  $NH_2$ ,  $NHR^6$ ,  $NR^6R^7$ ,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_1$ - $C_6$ -alkoxy,  $C_1$ - $C_6$ -haloalkoxy,  $C_2$ - $C_6$ -alkenyl,  $C_2$ - $C_6$ -alkynyl,  $C_3$ - $C_6$ -cycloalkyl,  $C_3$ - $C_6$ -cycloalkoxy,  $C_3$ - $C_6$ -cycloalkyl- $C_1$ - $C_4$ -alkyl and  $C_1$ - $C_4$ -haloalkyl, with it also being possible for two radicals  $R^b$  which are bonded to adjacent C atoms of Ar to be together  $C_3$ - $C_4$ -alkylene;

n is 0, 1 or 2;

$R^1$  is hydrogen,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -haloalkyl,  $C_3$ - $C_6$ -cycloalkyl,  $C_3$ - $C_6$ -cycloalkyl- $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -hydroxyalkyl,  $C_1$ - $C_4$ -alkoxy- $C_1$ - $C_4$ -alkyl,  $C_3$ - $C_4$ -alkenyl or  $C_3$ - $C_4$ -alkynyl;

$R^2$  is  $C_1$ - $C_4$ -alkyl or, together with  $R^1$ , is  $C_2$ - $C_5$ -alkylene or, in the case of  $n = 2$ , the two radicals  $R^2$  can together be  $C_1$ - $C_4$ -alkylene;

$R^3$  is hydrogen or  $C_1$ - $C_4$ -alkyl;

$R^{3a}$ ,  $R^{3b}$  are, independently of each other, hydrogen or C<sub>1</sub>-C<sub>4</sub>-alkyl;

$R^4$  is C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>2</sub>-C<sub>4</sub>-alkenyl C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl-C<sub>1</sub>-C<sub>4</sub>-alkyl, phenyl or benzyl; and

$R^5$  is hydrogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>2</sub>-C<sub>4</sub>-alkenyl C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl-C<sub>1</sub>-C<sub>4</sub>-alkyl, phenyl or benzyl;

$R^6$ ,  $R^7$  are each independently selected from C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl or together with the nitrogen to which they are bound form a saturated 3-, 4-, 5- or 6-membered heterocycle, which additionally may comprise an oxygen atom or an additional nitrogen atom as a ring member and which may carry 1, 2, 3 or 4 C<sub>1</sub>-C<sub>4</sub> alkyl groups;

the N-oxides thereof and the physiologically tolerated acid addition salts of these compounds;

with the exception of the compounds: 4-methyl-N-[6-(4-methylpiperazin-1-yl)pyridin-3-yl]benzenesulfonamide and 4-chloro-N-[6-(4-methylpiperazin-1-yl)pyridin-3-yl]benzenesulfonamide.

2. (Original) The compound as claimed in claim 1, wherein R is N- $R^3$  with  $R^3$  being H or C<sub>1</sub>-C<sub>4</sub>-alkyl.

2 3. (Currently Amended) The compound as claimed in claim 2, wherein

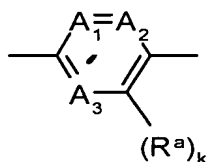
Q is a bivalent, 6-membered heteroaromatic radical which possesses 1 or 2 N atoms as ring members and which optionally carries one or two substituents

$R^a$  which is/are selected, independently of each other, from halogen, CN,  $NO_2$ ,  $CO_2R^4$ ,  $COR^5$ ,  $C_1$ - $C_4$ -alkyl and  $C_1$ - $C_4$ -haloalkyl and

Ar is phenyl or a 6-membered heteroaromatic radical which possesses 1 or 2 N atoms as ring members and which optionally carries one or two substituents  $R^b$ , which is/are selected from halogen,  $NO_2$ , CN,  $CO_2R^4$ ,  $COR^5$ ,  $C_1$ - $C_6$ -alkyl,  $C_2$ - $C_6$ -alkenyl,  $C_2$ - $C_6$ -alkynyl,  $C_3$ - $C_6$ -cycloalkyl,  $C_3$ - $C_6$ -cycloalkyl-C\pard plain 1- $C_4$ -alkyl and  $C_1$ - $C_4$ -haloalkyl, with it also being possible for two radicals  $R^b$  which are bonded to adjacent C atoms of Ar to be together  $C_3$ - $C_4$ -alkylene.

~~3~~ 4. (Currently Amended) The compound as claimed in claim 1, in which the piperazine ring is bonded to the heteroaromatic radical Q in the para position in relation to the group  $R-SO_2$ -Ar.

~~4~~ 5. (Currently Amended) The compound as claimed in ~~one of the preceding claims~~ claim 1, in which Q is a radical of the formula

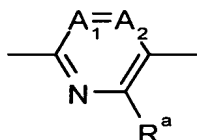


in which  $A_1$ ,  $A_2$  and  $A_3$  are, independently of each other, N or CH, one or two of the variables  $A_1$ ,  $A_2$  and  $A_3$  can also be  $C-R^a$ ,  $k = 0$  or  $1$  and  $R^a$  is selected from halogen,  $C_1$ - $C_4$ -alkyl,  $C_1$ - $C_4$ -haloalkyl,  $C_1$ - $C_4$ -alkoxy,  $NH_2$ ,  $NHR^6$ ,  $NR^6R^7$ ,  $s_{22}$  and  $C_1$ - $C_4$ -haloalkoxy, with  $A_1$ ,  $A_2$  and  $A_3$  not simultaneously being N or simultaneously being selected from CH and  $C-R^a$ .

~~5~~ 6. (Currently Amended) The compound as claimed in claim ~~4~~ 5, in which  $A_3$  is nitrogen,  $A_2$  is CH and  $A_1$  is N or CH and wherein the piperazine radical is located in the 2 position.

~~6~~ 7. (Currently Amended) The compound as claimed in claim ~~5~~ 6, in which Q is pyridin-2,5-diyl which carries the piperazine radical in the 2 position.

~~7~~ 8. (Currently Amended) The compound as claimed in claim ~~5~~ 6, in which Q is a radical of the formula



in which A<sub>1</sub> and A<sub>2</sub> are, independently of each other, N or CH and R<sup>a</sup> is selected from , C<sub>1</sub>-C<sub>4</sub>-alkoxy, NH<sub>2</sub>, NHR<sup>6</sup>, NR<sup>6</sup>R<sup>7</sup> and C<sub>1</sub>-C<sub>4</sub>-haloalkoxy.

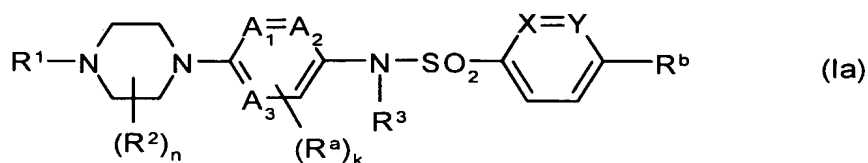
~~8~~ 9. (Currently Amended) The compound as claimed in claim ~~7~~ 8, in which A<sub>1</sub> is N or CH and A<sub>2</sub> is CH and wherein the piperazine radical is located in the 2 position.

~~9~~ 10. (Currently Amended) The compound as claimed in ~~one of the preceding claims~~ claim 1, in which the radical Ar carries a substituent R<sup>b</sup> in the para position and, where appropriate, a further substituent R<sup>b</sup> in the meta position or in the ortho position, in each case based on the binding site of the sulfonamide group.

~~10~~ 11. (Currently Amended) The compound as claimed in ~~one of the preceding claims~~ claim 1, in which Ar is phenyl or pyridyl, which radicals possess, where appropriate, one or 2 R<sup>b</sup> substituents.

~~11~~ 12. (Currently Amended) The compound as claimed in ~~one of the preceding claims~~ claim 1, in which R<sup>1</sup> is different from hydrogen and methyl.

~~12~~ 13. (Currently Amended) The compound as claimed in claim 1 of the general formula  
1a



in which  $n$ ,  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^a$  and  $R^b$  have the meanings given in claim 1 and in which either

$A_1$ ,  $A_2$  and  $A_3$  are, independently of each other, N or CH and one or two of the variables  $A_1$ ,  $A_2$  and  $A_3$  can also be  $C-R^a$ , with  $A_1$ ,  $A_2$  and  $A_3$  not simultaneously being N or simultaneously being selected from CH and  $C-R^a$ ,

X and Y are selected from CH,  $C-R^b$  and N, in which  $R^b$  is halogen, methyl, CN, difluoromethyl or trifluoromethyl, with X and Y not simultaneously being N or simultaneously being  $C-R^b$ , and

$k$  is 0 or 1.

~~43~~ 14. (Currently Amended) The compound of the formula Ia as claimed in claim ~~42~~ 13, in which  $k = 0$ , with  $A_1$ ,  $A_2$  and  $A_3$  being, independently of each other, N or CH and  $A_1$ ,  $A_2$  and  $A_3$  not simultaneously being N or simultaneously being CH.

~~44~~ 15. (Currently Amended) The compound of the formula Ia as claimed in claim ~~43~~ 14, in which  $A_1$  is CH or N,  $A_2$  is CH and  $A_3$  is N.

~~45~~ 16. (Currently Amended) The compound of the formula Ia as claimed in claim ~~42~~ 13, in which  $k$  is 1,  $A_1$  is CH or N,  $A_2$  is CH and  $A_3$  is N, and  $R^a$  is selected from ,  $C_1$ - $C_4$ -alkoxy,  $NH_2$ ,  $NHR^6$ ,  $NR^6R^7$  and  $C_1$ - $C_4$ -haloalkoxy and  $R^a$  is bound to the carbon atom adjacent to  $A_3$ .

~~46~~ 17. (Currently Amended) The compound of the formula Ia as claimed in ~~any of claims 12 to 15~~ claim 13, in which  $n$  is 0 or 1 and, in the case of  $n = 1$ ,  $R^2$  is bonded to the C

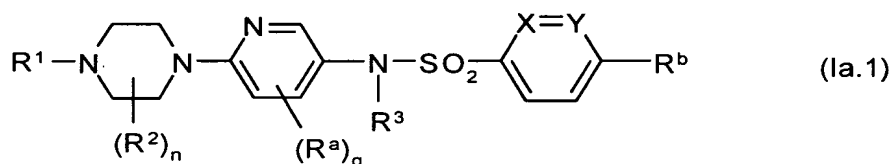
atom of the piperazine ring which is adjacent to the group R<sup>1</sup>-N and is a methyl group having the S configuration.

~~47~~ 18. (Currently Amended) The compound of the formula Ia as claimed in ~~one of claims 12 to 16~~ claim 13, in which the radical Ar carries a substituent R<sup>b</sup> in the para position and, where appropriate, a further substituent R<sup>b</sup> in the meta position or in the ortho position, in each case based on the binding site of the sulfonamide group.

~~48~~ 19. (Currently Amended) The compound of the formula Ia as claimed in ~~one of claims 12 to 17~~ claim 13, in which Ar is phenyl or pyridyl, which radicals possess, where appropriate, one or 2 R<sup>b</sup> substituents.

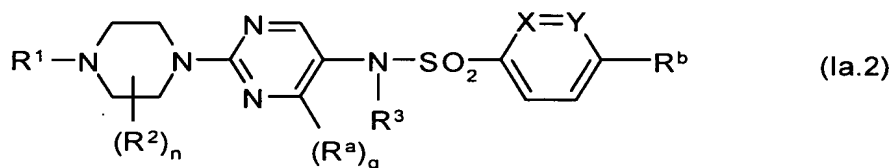
~~49~~ 20. (Currently Amended) The compound of the formula Ia as claimed in ~~one of claims 12 to 18~~ claim 13, in which R<sup>1</sup> is different from hydrogen and methyl.

~~20~~ 21. (Currently Amended) The compound of the formula Ia as claimed in ~~one of claims 12 to 19~~ claim 13, of the general formula Ia.1



in which n, X, Y, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>a</sup> and R<sup>b</sup> have the meanings given in claim ~~42~~ 13 and q is 0, 1 or 2.

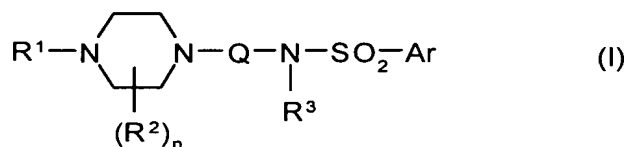
~~24~~ 22. (Currently Amended) The compound of the formula Ia as claimed in ~~one of claims 12 to 19~~, claim 13 of the general formula Ia.2



in which n, X, Y, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>a</sup> and R<sup>b</sup> have the meanings given in claim ~~42~~ 13 and q is 0 or 1.

~~22~~ 23. (Currently Amended) A pharmaceutical composition which comprises at least one N-[(piperazinyl)hetaryl]arylsulfonamide compound as claimed in ~~one of claims 1 to 24~~ claim 1 and/or at least one physiologically tolerated acid addition salt of I and/or an N-oxide of I, where appropriate together with physiologically acceptable carriers and/or auxiliary substances.

~~23~~ 24. (Currently Amended) The use of at least one N-[(piperazinyl)hetaryl]arylsulfonamide compound of the formula I



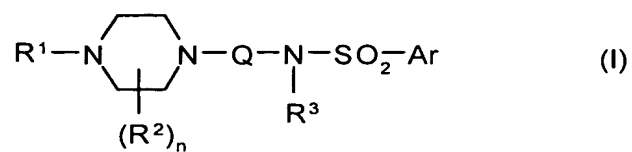
in which Q, Ar, n, R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> have the previously mentioned meanings, of the N-oxides thereof and of the physiologically tolerated acid addition salts thereof for producing a pharmaceutical composition for treating diseases which respond to influencing by dopamine D<sub>3</sub> receptor antagonists or dopamine D<sub>3</sub> agonists.

~~24~~ 25. (Currently Amended) The use as claimed in claim ~~23~~ 24 for treating diseases of the central nervous system.

~~25~~ 26. (Currently Amended) The use as claimed in claim ~~23~~ 24 for treating kidney function disturbances.

~~26~~ 27. (Currently Amended) A method for treating a medical disorder susceptible to treatment with a dopamine D<sub>3</sub> receptor antagonist or a dopamine D<sub>3</sub> agonist, said method comprising administering an effective amount of at least one compound of the formula I in which Q, Ar, n, R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> have the previously mentioned meanings, or the N-oxides thereof or the physiologically tolerated acid addition salts thereof to claim 1





to a subject in need thereof.

~~27~~ 28. (Currently Amended) The method as claimed in ~~Claim 26~~ claim 27, wherein the medical disorder is a disease of the central nervous system.

29. (New) The method as claimed in claim 27 wherein the medical disorder is a disturbance of kidney function.